

## Appendix A: Special Species of the Loess Hills

This appendix lists the large number of Loess Hills species that are distinguished by their patterns of distribution or rarity. The landform's large amount of remaining natural habitat constitutes a fertile biological crossroads for species of eastern deciduous forests and western mixed-grass prairies, many of which reach their farthest outposts in or close to the Loess Hills.

Twelve animals and 28 plants are near the western edge of their distribution range in the Hills. These eastern deciduous forest species are found in the moister forested areas of the Loess Hills and extend their range a short distance farther west into Nebraska.

A similar number of organisms (28 vascular plants; 8 animals, mostly reptiles and amphibians), nearly all of which are prairie species, stretch their ranges eastward just into western Iowa. About a third of these are restricted in Iowa to the Loess Hills. These species (for example soapweed and skeletonweed) are classic indicators of Loess Hills dry mid-grass prairies. They are joined by rusts and other fungi and by soil lichens that are typical of western arid regions.

Western species demonstrate numerous adaptations that allow them to thrive in the harsh, desert-like environment of Loess Hills prairies. Many animals spend sunny days underground in burrows. The plains spadefoot toad, with a center of distribution in our nation's southwestern deserts, carries this trait to an extreme. The toad comes to the ground surface for only a few weeks each spring to complete its breeding cycle. The plains pocket mouse, a relative of the desert-dwelling kangaroo rat, can manufacture its required water entirely from the food it eats. Although its largest populations exist in the Loess Hills, this western mouse also is found sporadically to the east of the Hills on dry loess and sandy soils.

Western plants display numerous traits that aid in preventing desiccation – low stature, small leaves, thick waxy cuticles, reflective silvery surface hairs, and deep roots. The leaves of skeletonweed, for example, have been reduced to mere slivers, while soapweed stores water in its fleshy silver-green leaves. Forty-foot-deep roots have been measured in loess soils for soapweed, a plant that rarely exceeds 4 feet in height.

Western species extending into the Loess Hills exhibit unusual distribution patterns. Many, like soapweed, seem to have migrated along the Missouri River's dry bluffs and sand dunes and today extend from the Great Plains eastward into the Loess Hills along a long, thin corridor that follows this river's course. Others, such as cowboy's delight, are truly disjunct species that are separated from larger populations by a hundred miles or more. These are likely to be relicts of populations that were widespread long ago when hot, dry climates nudged western prairie communities eastward.

Table A-1 lists the special species and their distribution among Special Landscape Areas of the Loess Hills. Special Landscape Areas are described in Appendix D.

### Table A-1: Special Species

[illegible]

<b>BIRDS</b>																	
Least Flycatcher	<i>Empidonax minimus</i>	woodland edges		S													
Bald Eagle	<i>Haliaeetus leucocephalus</i>	woodland		E*												D	
Kentucky Warbler	<i>Oporornis formosus</i>	woodlands	E														D
Summer Tanager	<i>Piranga rubra</i>	woodlands	E														D
Louisiana Waterthrush	<i>Seiurus motacilla</i>	woodlands	E														D
<b>MAMMALS</b>																	
Southern flying squirrel	<i>Glaucomys volans</i>	woodlands	E		P	P		P	P	P	P	P	P	P	P	P	P
Bobcat	<i>Lynx rufus</i>	woodlands		E											D	D	
Woodland vole	<i>Microtus pinetorum</i>	woodlands	E										N	N	D	D	
Northern grasshopper mouse	<i>Onychomys leucogaster</i>	various		T		N	P	P	D	P	N						
Plains pocket mouse	<i>Perognathus flavescens</i>	prairies	W	E	D	P	P	P	D	D							
Southern bog lemming	<i>Synaptomys cooperi</i>	prairies	E	S					P	P	P	P	P	P	P	P	D
Eastern chipmunk	<i>Tamias striatus</i>	woodlands	E					N	D								
<b>PLANTS</b>																	
White baneberry	<i>Actaea pachypoda</i>	woodlands	E														P
Ohio buckeye	<i>Aesculus glabra</i>	woodlands	E					P	P	P	P	P	P	P	P	P	P
Rock cress	<i>Arabis shortii</i>	woodlands	E					P	P	P	P	P	P				
American spikenard	<i>Aralia racemosa</i>	woodlands	E		P	P	P	P	P	P	P	P	P	P	P	P	P
Green dragon	<i>Arisaema dracontium</i>	woodlands	E										P	P	P	P	
Three-awned grass	<i>Aristida purpurea</i>	prairies	W		P	P	P										
Eared milkweed	<i>Asclepias engelmanniana</i>	prairies	W	E						D	P	P	P	D			
Narrow-leaved milkweed	<i>Asclepias stenophylla</i>	prairies	W		P	P											
Paw paw	<i>Asimina triloba</i>	woodlands		S													D
Lotus milk vetch	<i>Astragalus lotiflorus</i>	prairies	W		P	P	P	P	P	P	P	P	P	P	P	P	P
Missouri milk vetch	<i>Astragalus missouriensis</i>	prairies	W	S	D	P	D	P	P								
Prairie moonwort	<i>Botrychium campestre</i>	prairie edge		S	D	D	P	P	D	P	P	P	P	P	P	P	P
Blue grama	<i>Bouteloua gracilis</i>	prairies	W		P	P	P	P	P	P	P	P	P	P	P	P	P
Bearded short-husk	<i>Brachyelytrum erectum</i>	woodlands	E					P	P	P	P	P	P	P	P	P	P
Buffalo grass	<i>Buchloe dactyloides</i>	prairies	W		P	P											
Rocky Mountain sedge	<i>Carex saximontana</i>	woodland edge	W	S	D	D	P	P	P								
Blue cohosh	<i>Caulophyllum thalictroides</i>	woodlands	E					P	P	P							



Mayapple	<i>Podophyllum peltatum</i>	woodlands	E														P
Hairy mountain mint	<i>Pycnanthemum pilosum</i>	woodland edge	E														P
White oak	<i>Quercus alba</i>	woodlands	E											P	P	P	P
Hooked buttercup	<i>Ranunculus recurvatus</i>	woodlands	E		P	P	P	P	P	P	P	P	P				
Tumblegrass	<i>Schedonnardus paniculatus</i>	prairies	W	S	D	D	P	P	P	P	D	P					
Sensitive briar	<i>Schrankia nuttallii</i>	prairies		S									P	P	P	P	
Silver buffaloberry	<i>Shepherdia argentea</i>	prairie edge	W	T	P	P	P	P	P								
Zig-zag goldenrod	<i>Solidago flexicaulis</i>	woodlands	E														P
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	prairies	W	T	D	P	P	P	P	D	D	P	P	D	P		
Needle-and-thread grass	<i>Stipa comata</i>	prairies	W	S			P	P	P	P	D						
Green needlegrass	<i>Stipa viridula</i>	prairies	W		P	P	P	P	P	P	P						
Rock elm	<i>Ulmus thomasii</i>	woodlands	E					P	P	P	P	P	P	P	P	P	P
Frost grape	<i>Vitis vulpina</i>	woodland edge		S											P	P	P
Soapweed	<i>Yucca glauca</i>	prairies	W		P	P	P	P	P	P	P	P	P	P	P	P	P
1) Affinity: <b>W</b> , Species with western affinities that reach their eastern range limits in far-western Iowa. Some of these are isolated from their centers of population far to the west. <b>E</b> , Eastern species near the western edge of their distribution range in the Loess Hills.																	
2) Official Iowa Status: <b>E</b> , endangered; <b>T</b> , threatened; <b>S</b> , special concern. Note: "Endangered" is defined as "likely to become extinct in the state in the foreseeable future". "Threatened" means "likely to become endangered in the state in the foreseeable future." "Special Concern" means suspected to be rare or declining in the state, but more information is needed to assess the status of these species.																	
3) Special Landscape Areas (as described in appendix D): <b>D</b> , species documented within Landscape; <b>N</b> , species documented nearby Landscape; <b>P</b> , species predicted to occur in general vicinity of Landscape																	
* The Bald Eagle is federally listed as Threatened in the lower 48 states.																	